Vol. 3, No. 1 June, 1952

SYSTEMS AND PROCEDURES QUARTERLY

IN THIS ISSUE

The Systems Side of the Story—*Leslie Matthies*

Viewing the Supervisor—*Richard Neumaier*

New Horizons with Telegraph Transmission Techniques —*G. A. Trapp*

Systematic Purchasing—*E. R. Verbeek*

Bibliography, *SPA Quarterly*

Office Systems Courses in the College Curriculum —*Samuel J. Wanous*

Systems Work in the Utilities Field—*John G. Cadby*

PUBLISHED BY THE SYSTEMS AND PROCEDURES ASSOCIATION OF AMERICA

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As a member of this organization, I recognize that I have an obligation:

To promote the advancement of systems and procedures throughout all management. I shall uphold the standards of our Association and cooperate with others in the dissemination of knowledge on developments in our field.

To my employer and my fellow member whose trust I hold. I will endeavor to the best of my ability to warrant this confidence by advising them wisely and honestly.

Not to use my membership in this Association as an advertisement to solicit business with clients.

Not to accept commissions for the sale of equipment to my employer or my clients.

Not to use any knowledge gained of the internal conditions of the business of a fellow member's employer to further my own personal interests with that company or discredit the fellow member before his employer.

I accept membership in this Association with a full knowledge of the responsibility it imposes upon me and I shall dedicate myself to the discharge of these obligations.

". . . to provide a means for the study and dissemination of knowledge relative to systems and procedures through research, discussion and publications"

—from the Association's By-Laws

SPA Quarterly

Official Journal of the

Systems and Procedures Association of America

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The Quarterly is published by the Systems and Procedures Association of America, Box 96, Madison Square Station, New York. Yearly subscription rate $3.75, single copies $1.
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June 1952

Keep It Pure

IN the course of his duties the systems man will turn out numerous procedures setting forth the routines and activities of file clerks, planners, designers, buyers, timekeepers, accountants, shipping clerks, salesmen and all of the other categories of personnel which make up a business enterprise—but the wise systems man will never write himself into a procedure.

To fulfill his appointed purpose, the systems man must keep free of line duties and responsibilities. By the nature of his calling he is the teller and not the doer. Every routine duty which he adds to his job lessens his availability for his primary *raison d'être* which is to provide the most efficient methods for the adequate accomplishment of the essential clerical activities of the organization.

Furthermore, by accepting line responsibilities the systems man not only sacrifices valuable time but renders himself more vulnerable to criticism from others. None of us are perfect, and when a systems man takes a line function under his wing he is going to carry out some imperfect operations. If he expects to apply a lot of thought to the improvement of his own operations he will probably be disappointed. Whatever time he has left for systems will be monopolized by the larger departments of the company to the neglect of his own.

Yet it is often unhappily inevitable that the systems man will, over the course of the years, accumulate so much proficiency and learning in general and specific clerical operations that he is hard put to avoid some sort of line responsibility in their connection. Operations commonly foisted on the systems man are forms control, stationery stores, office machines control, reproduction services, internal communications, records administration, and other service activities.

To keep systems pure, the systems manager has to avoid distracting entanglements. If he can't stay free himself he should delegate the stewardship of his systems activities to an assistant. And he should provide that individual with a staff assigned to work exclusively in systems. Only then will he be able to keep the systems activity in the pure state necessary for the attainment of maximum value.

The Systems Side of the Story

By Leslie Matthies

TODAY, the subject of systems and procedures is being given a lot of thought and consideration, and men who are specialized in this field are fast reaching a professional status. Yet, if we go back only fifteen years you will find that the professional systems man was a rather rare bird. In certain instances men were doing systems work under other titles, but the recognized systems department was the exception, not the rule. There were a few companies that had advanced to the stage where they were utilizing systems services similar to those that are commonly expected of a systems department today, but these companies were in the minority.

In the middle thirties certain pioneers were preaching the systems gospel to management, and the better salesmen among these pioneers were able to make management realize that systems and procedures work was really something quite different from accounting, or from industrial engineering. And equally itmportant. About this time the term "clerical engineering" came into being, and we believe it is still reasonably descriptive of the work.

To illustrate the lack of recognition of systems by management in the late thirties, I offer the following example: A friend of mine who was trained in the systems field contacted one of the so-called executive placement employment agencies and tried to sell his services through one of the best concerns of this type on the Pacific Coast. The agency manager, who had contact with hundreds of the largest organizations in Southern California, asked questions like this: "Are you an accountant?" and my friend answered, "No." The manager then asked, "Are you an auditor?" and my friend still answered, "No." In desperation the agency manager asked. "Well then, are you an industrial engineer?" And this friend of mine still had to answer, "No," and went on to explain just exactly what a systems man did. The agency manager listened carefully, then conscientiously contacted certain key executives to see if he could secure an opening for his client. But all to no avail.

About at the beginning of World War II American industry found it necessary to expand rapidly, and before we knew it many of our largest industrial concerns were snowed under with paper-work. The result was almost chaos and production suffered severely. It was obvious to management by this time that someone had to ride herd on this mass of paper-work, forms, instructions and procedures that were produced. Someone had to organize them and turn them into a powerful instrument of management and eliminate the mass of red tape and confusion.

All of a sudden a man who knew anything at all about systems work was in demand. People, from shoe clerks to mining engineers, had to be made over into systems men overnight. These neophytes were expected to design organizational charts, set up operating manuals, survey paper-work systems, install complicated office machines, and design forms on which millions of man-hours were to be expended. They were expected to tie all the activity into the accounting procedures of the organization.

A few of these pioneer systems leaders conducted instruction courses for the shoe clerks, et al., and through a mass training program were able to do a reasonably good job. As some folks put it, they were able to "bring some organized confusion out of disorganized chaos."

By the time World War II had ended, management all over the United States had had a god taste of what systems activity could do for industry, yet in many cases they fired the systems department wholesale right after VJ Day. However, it usually took less than a year for these managers to see things going to pot again, and they were quick to recall at least a skeleton systems crew to retain a semblance of procedural order and forms control. Many of the novices who were trained during the war turned out to be excellent systems men and afterwards they went out and secured good jobs in peace-time industries and in governmental organizations.

Today most progressive companies have little doubt any longer about the need of having someone perform the functions of systems and procedures. Certainly there are companies of large size that even today do not have a recognized systems department, but they are either weighed down with floods of paper-work or else a little analysis will show that the function is there and being handled by someone on the payroll, no matter what his

A Los Angeles SPA Institute paper

A systems man explains why management needs systems to control organization, paperwork and other clerical functions.

title may be. In other instances companies are utilizing the services of a highly skilled professional man on a consulting basis.

Today our problem is not one of selling our top managers on the value of systems, but rather one of making clear to management the potentialities of the systems setup and in securing management's support in obtaining the objectives.

Frank M. Knox, one of the foremost management consultants in the United States on forms control and clerical systems, says, "In order to control paper-work you must control your printed forms." It will pay us to give some thought to what Mr. Knox means. Studies made by various professionals in systems or procedures work have indicated that for every one dollar's worth of printed forms we stock, we will find it necessary to expend from $10 to $25 to buy them, to process them, and to dispose of them. Do what you will, these costs will inevitably follow the introduction of a printed form. If you want to know what your own clerical cost ratio is to the printed form cost, you can check your payroll for all persons doing paper-work, including clerks, stenographers, secretaries, factory supervisors, and administrative personnel. After you have secured this total, then add all the bills for printed forms during the same period. Add to this total an estimated amount for the forms you produced on your duplicator. Divide this amount into the payroll figure secured above, and you have your own ratio. Chances are it will be about $1 to $17.

By adding these two totals together—the cost of the forms and the cost of the clerical work—you will have some idea of the cost field in which the systems man is working. While it is not a systems man's only job to secure these clerical services at the lowest possible cost, it is one important phase of his work. As a matter of fact, this one phase of systems work will enable the department to pay for its own cost. Then the other benefits are "gravy" to management.

With a "heads-up" systems department you can be in a position of knowing that the paper-work you have in the plant is reasonably essential to your operations. A nice feeling to know that, isn't it? Back in 1925 Wallace Clark, one of the pioneers in studying paper-work in the factory, made a statement something like this: "How much is enough paper-work? A complete set of forms for any organization might be compared to a tight chain formed in a circle. If only the forms and records that are essential are in this chain, none can be pulled away without making it impossible for some part of the organization to function. If forms are outside of this circle, they can be dropped and nothing will happen except that we will have less paper-work in the organization."

Management, then, has very largely realized the need for basic systems work in controlling the vast operating complexities in our enterprises today. Management expects and gets well coordinated procedures and well designed printed forms.

How much more can a systems department do for management? What are some of the plus values of a systems department? One way of indicating some of these potentials is to examine the various facts of forms control. The basis of office activity is the printed form. Therefore, let us examine one form that can be used to control the birth of all other forms. With this instrument we attempt to guide the form from its creation to its final ashes in the incinerator. I refer to a form titled "Forms Request and Approval." This form is zoned so that like groups of data are kept together. After our analyst has secured the information from the requestor, including the proposed forms title, we want to know the functional use of that form. We ask questions about the related procedure, and if no procedure exists, we want to know when it will be written, and who will write it. We are interested in knowing where the data for filling in the form comes from—in order to tie systems together. We want to know briefly the general purpose of this new form. We also want to know if information will be transcribed from it onto reports or other forms.

In the next main zone—"Use of Copies"—we list the number of copies. We want to know where they go and what they are used for. We want to know if the copies go into the file as originally written, or if further data will be added (obviously, if ten copies are made of a form, it is only necessary to retain one copy and the others can be destroyed, unless further data have been added). This section will reveal some amazing facts. Not long ago, we had a request from a department asking for a four-part form and we asked the requestor where the four copies went and what they were used for. He could explain the destination and use of the first copy, but not the other three, and he finally weakly admitted that the other three copies were going to be ordered "just in case some-

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body wanted them." Needless to say, he didn't get his extra copies. This form has been instrumental in revealing a lack of complete planning in some instances and has forced people to do more thinking about the procedure that accompanies the form and about the use of the form itself. We don't accept general uses such as "file," or "reference." We want more specific detail than that.

On the right side of this third block, we have "Printing Details" which are of interest primarily to the printer and a carbon copy of this form goes to the printer so that it is not necessary to transcribe this technical detail onto a purchase order.

In the center of the third main block we have special instructions with a series of check blocks so that we will be reminded to fill in all needed specifications for the printer. At the bottom of this same block, we ask if a reproducible copy is included. This copy might be vellum, which can be reproduced by the blue-line process, or it could be a ditto master set. If extra copies are to be produced later from this reproduction copy or original, we want to secure this detail for our records management program.

Basis for file program

The next block under "Usage" is an attempt to guide the buyer and the stockroom man by indicating quantities to buy and to stock.

In the next block, under "Filing," we attempt to get as much information as possible—prior to the birth of the form on where it is to be filed. We ask questions about disposition, and years of active or inactive reference. Here is the foundation for a records management program.

Finally we require Approvals from the department, the division, and from our own forms control people. So your systems man could build his entire program around the control of forms. Speaking of forms control, Mr. Knox brought out another very significant point. He went into a large manufacturing company in Ohio and the officials told him that they had 1700 different forms in use. During the course of his survey his men gathered together all of the so-called "bootleg," or duplicator forms, and found that the firm actually had over 5000 forms of all types. In this particular company overhead costs were extremely high—which was to be expected. Examples of this type give management some idea of why the systems man urges that duplicators be retained under a centralized control, even though decentralized operations are sometimes necessary.

Another authority, after a survey made in big war plants at the height of World War II, said, "Our studies lead us to believe that it only takes about 12 to 14 bootleg (duplicator) forms to require one more clerk!" When managers understand the ratio of printed forms to clerical work and give some thought to the foregoing statements, they will begin to appreciate Mr. Knox's statement quoted earlier that "In order to control your paper-work you must control your paper." A systems man that knows his business can definitely control the paper within the organization—if his manager understands the problem and gives the required backing.

Your systems department will see that all important procedures are written, coordinated, and published. They should then be placed in a manual so that they will be useful to operating people who are making everyday operating decisions.

Every organization should have a plan for keeping the organization charts up-to-date, and these charts should reflect—accurately—the responsibilities and relationships of the entire organization. Departments, divisions, and sections within organizations need job descriptions just as individuals need them and we ordinarily call these descriptions of departmental duties or divisional duties "Functional Outlines." Our systems man can write, coordinate, and issue Functional Outlines for the entire organization and keep them handy for operating people. In this way these operating people and supervisors will know what management expects of them.

An alert systems man will assist top management in the formulation of policy statements so that the various division chiefs understand management's general aims.

A new phase of systems and procedures is becoming more important, and that is the field of Records Management. A systems man either knows how to set up standards for filing and for the classification of records—by degree of vital importance. He can plan for the preservation or destruction of these records.

Study of functions important

A manager and his systems man stand side by side on the matter of viewpoint. Both continually strive for a *broad viewpoint*. Both try to see all elements of the organization in their proper relationship. On the other hand, minor executives, and the workers themselves, are usually concerned with operating details and their viewpoint is usually limited. But, you can take any executive in the world and stand him at the end of a busy large office and ask him to tell you something about the functions he sees taking place in front of him and he will not be able to tell you much about it, unless he has made a study in some other manner. He will see many well-trained people at work—typists, clerks, machine operators, people taking orders, people taking dictation, people filing, people operating machines, people walking around, people talking and conferring together. Can our executive see the functions through all of this activity? It is the systems man's job, through the use of flow charts and survey facts, to help the executive see just what is taking place. Without the factual pictures supplied by the systems department, many top executives would be unaware of duplica-

(*Continued on page 18*)

Viewing the Supervisor

By Richard Neumaier

Unless a systems man himself has the qualifications of a supervisor, his contacts with supervisors are not likely to succeed.

WE know that every supervisor is critical of the systems and procedures man who comes into his department. To understand this critical attitude better, it might be worth while to analyze the make-up of a good supervisor, so that we can better understand his reactions towards us. In some instances we may also find that the person designated as a supervisor does not fulfill all the qualifications a supervisor should possess. Under such conditions it may be necessary to adjust ouselves to a supervisor with sub-standard qualifications, or to bring the facts to management's attention, so that management can improve a given situation.

There is an old adage, that the best system will not work unless the supervisor and the employees who have to carry out the detail work of our daily operations wish to co-operate. This co-operation and participation in a systems analysis, with the subsequent recommended changes, is definitely a deciding factor in the success of any system or procedure.

In evaluating a supervisor, there is first of all his loyalty to his firm and to his job, as without loyalty there is no willingness on his part to bring about the desirable improvements in quality and quantity of work-load. Neither is there willingness to co-operate on any proposed or possible simplification.

Loyalty alone naturally does not get results from his fellow-workers, who require a definite leadership on his part and can only be guided by one person who has the ability to get along with them. Again, ability to get along is not sufficient. Inspiration to accomplish certain goals, and direction of how to do this, is necessary.

These qualifications are generally known as leadership ability. As a logical background to exert this leadership ability, we must expect from a good supervisor an ability to observe and translate these observations through good judgment into clearly expressed ideas which he can transmit easily to others either through training instructions or good procedures. While these qualifications are very much all-inclusive, it would still be necessary that judgment, resourcefulness, coupled with initiative, are required by a supervisor who wants to be respected by his employees and wishes to set a good example for the others to follow.

A supervisor also has responsibilities to the executive to whom he reports. This executive will expect dependability, reliability and accuracy from his supervisor, to assure best job performance. Ambition to succeed, without trying to exceed his own limitations and offending his fellow supervisors and employees, is a characteristic that cannot be over-emphasized. He must naturally set a high standard for himself, work hard and be satisfied to gain achievement for its own sake without an immediate reward; but this must be accomplished without antagonizing the rest of the employees and supervisors. We all have seen the over-ambitious supervisor at work whose goal is set too high and who accomplishes a great deal but has no friends among the employees.

The knowledge of his own job together with all work performed under him, must be very thorough, because only a supervisor who understands the work that has to be performed can write standard procedures for each phase of the work or adhere to them. In the knowledge of the job it is also possible to judge the expected work-load for each of the employees under him; and thereby he should be able to set a fair standard of work and service. He must be able to assign each activity, and then give this individual complete responsibility for results. The delegation of authority and the willingness to delegate his authority is one of the essentials of good supervision. It is naturally essential in delegating these authorities that the instructions are explicit, that each individual understands the procedures and the reason for them. However, it is still the supervisor's responsibility to keep vigilance on results, as in the final analysis the supervisor is responsible for delegated performance.

A clear definition of the duties in delegating any authority requires also an ability to give orders. However, this should not be orders to be carried out without thinking. The orders should be understood and every person should know the reasons behind the request. On the other hand, it is just as important to get the reaction to orders which are understood but not accepted as de-

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MR. NEUMAIER is a systems consultant. He is an active member of the Philadelphia chapter of SPA.

sirable. There must be a two-way communication between the supervisor and his employees, to get their thinking about the jobs to be done, as after all the employee who actually does the work often knows more about it than anybody else in the entire organization. If suggestions are made, act promptly and let it be known that they were welcome and that they have been carried out. If suggestions cannot be accepted, the supervisor must explain the reason why they do not fit into the over-all picture. It can easily be seen that new procedures which a systems and procedures man may desire will not be carried out if the employee does not get the correct information from his supervisor or if his supervisor does not transmit the reaction of the employee affected by a change. The supervisor also has responsibilities to keep the costs of his department low, and he should be trained in work simplification to accomplish the most with the co-operation of his employees.

There are also social problems involved in a supervisor's ability to get along with people and in the problem of the people under his supervision to get along among themselves. He must be considerate and understanding of other people's problems, and there is no substitute for being a good listener. This does not mean, however, that discipline, or that promotion and recognition of special effort, can be disregarded. Soft-soap does not take the place of either discipline or recognition. In either case definite action is required for the maintenance of best understanding between employees and the supervisor.

Broad viewpoint needed

The supervisor has also a responsibility towards the community, and he should participate in community, school, public and charity affairs. This not only will develop a better relationship for his company towards the community, but it will also make him a bigger man in his own thinking and develop his approach to the needs of others. The old saying, that you only get out what you put in, cannot be applied in any truer sense than in the approach to community and charitable problems.

The supervisor who can fill these requirements is also the man who can carry out a new approach to any given business condition. He is the man to work with in installing a new system. Should he not come up to the standard, it can also be the systems man's responsibility to help him to achieve this standard, through the recommendation of literature and tactfully revealing his shortcomings. That brings us again to our systems and procedures man who has to work with him, and let it be said here that unless a systems man has the qualifications of a supervisor, he is not entitled to make one personal contact within an organization, or write one sentence in a procedure. *A systems man must be a superior supervisor or he cannot be a good systems man.*

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New Horizons with Telegraph Transmission Techniques

(Last of Two Installments)

I THINK only the surface of potentialities has been scratched and that developments in the future will be governed almost entirely by the availability of equipment, and here, I think the demand will far outstrip the supply, which continues in extremely short supply at the moment. Facility-wise, tremendous strides have been made, even in the last five or six years. For illustration, only about that length of time ago we had about 200,000 miles of carrier circuits; today, we have almost 1,750,000 miles of such circuits and because carrier circuits produce much greater fidelity of operation, with fewer interruptions and those of shorter duration, an already high standard of performance may be enhanced.

As to what the future may hold, I can but venture a guess. If developments within the past twenty years, even within the last decade, may be accepted as criteria, then we may look for unprecedented expansion in the use of private wire systems by business, generally, large and small. Communications equipment will be simplified and improved and will render an even better performance than in the past. Systems and procedures will be devised to fit almost any situation. Other factors such as the microwave radio relay systems, television and facsimile transmission will without a doubt assume added significance in the field of record communications.

The domestic telegraph industry of this country has come to expect a degree of circuit stability and continuity which until five or six years ago had been economically impossible of attainment by radio. The opening of the super-high frequency spectrum under the impetus of military necessity for radio locators changed the picture. The highly directional antennae of practical size available for frequencies from 3,000 megacycles up and the complete absence of natural and man-made noises in this region make it possible today to obtain with a fraction of a watt of radio power the results formerly achieved only with many kilowatts.

About six years ago Western Union announced its program of a high frequency radio relay system, a system

An International Systems Meeting paper

Telegraph tools and techniques are still developing, this expert says. In this installment, he discusses television's future in business communications.

By G. A. Trapp

developed through cooperative research with the Radio Corporation of America. At that time, Dr. Jolliffe of the R.C.A. described the system as "one of the most significant advances in communications in modern times" and credited R.C.A. engineers with the development "which will ultimately replace thousands of miles of telegraph and telephone lines and open new services."

In all radio the direct signal from sending to receiver has come to be recognized as the more dependable signal. Radiators and collectors for micro-wave systems are, therefore, so located on towers and on hill tops that the path between them is unobstructed either by the natural horizon or by intervening hills or buildings. The earth's curvature is such that a geometric path between two 100-foot towers, 25 miles apart, is in contact with the earth at mid-span. Present experience indicates that perhaps 100-foot clearance over the horizon or hill tops is desirable throughout the entire span.

In the initial development of the micro-wave system, many difficulties were encountered, one of which, rapid fading in the spring and summer months, was overcome by dual reception. The waves received by two collectors separated by as little as twenty feet it was found, do not disappear simultaneously.

Consequently, radio relay towers placed about thirty miles apart have been erected and our system connecting New York, Philadelphia, Washington and Pittsburgh has been in successful operation. The network connecting these cities involves the installation of terminal equipment in the four cities mentioned and the construction of intermediate relays in towers on mountains or hills ranging from 14 to 54 miles apart and having elevations up to 2,900 feet. The towers are from 60 to 120 feet in height.

On top of the radio relay towers, which are square, are cabins 12 by 12 feet in size in which reflectors are mounted for the purpose of directing the radio beams. Most of the equipment, however, is housed in a building at the base of the tower. Normally, the relay towers are unattended.

This micro-wave system provides radio beams in each direction. Each beam is equipped to provide 270 multiplex circuits, so that 1,080 operators could transmit telegrams simultaneously over a beam in one direction. However, there is little present likelihood that traffic between any two cities would require such a large capacity. The radio relay facilities, however, may be used for various kinds of circuits, including multiplex, facsimile, and teleprinter.

By materially reducing circuit interruptions due to storms, falling trees and electrical disturbances, the radio relay system is expected to improve the quality, dependability and speed of telegraph service provided to the public. From the initial trial installation with a three-link system from New York to Philadelphia only about five years ago, remarkable progress has been made and through cooperative research the new medium has become an economic practicability.

I am often asked what advantages application of the television principle will have as an operating system for carrying large volumes of telegraph traffic. Analysis of the art as we know it today indicates rather serious difficulties in its possible application to the handling of message traffic.

In its present development, television requires a complete scanning of the subject or copy about thirty times a second and a transmission band width of approximately 4½ megacycles. Such frequencies cannot be transmitted over any facilities that we now have or contemplate because they require a very wide band transmission medium—either radio or coaxial cable.

Of course, for sending a telegram, only a single scanning would be required provided it is slow enough and generates enough energy to permit recording at the receiving end. In other words, what is needed is not a television transmission but a facsimile transmission and the scanning, transmission and recording of a sufficient number of impulses to secure good definition. For transmission of ordinary telegrams it has been found that 100 line scanning is good enough, which corresponds to 10,000 impulses per square inch. If we were to scan a message of say 15 square inches area, we would have to transmit 150,000 impulses per scanning.

Now, an ordinary telephone circuit will pass about 3,000 cycles per second and therefore, would be capable of transmitting one facsimile of a 15 square inch copy in about 50 seconds. Allowing for a brief time interval between transmissions, this would give a message capacity for a voice frequency circuit of about one per minute. Comparing these figures with ordinary telegraph transmission, we can, by means of our carrier system, break a 3,000-cycle voice frequency band into at least nine

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300-cycle bands for multiplex telegraph circuits, and each multiplex circuit can, in turn, be split into four channels. This will give us a capacity of 36 teleprinter channels each of which is capable of transmitting an average of 60 messages per hour or one per minute. On such a circuit, therefore, teleprinter operation on multiplex channels of a carrier will have a message capacity of 36 per minute or 36 times greater than is possible by the facsimile method, assuming the latter to transmit a blank area of 15 square inches.

In the Western Union Radio Beam program, we have band widths of 150,000 cycles from which we obtain not less than 30 voice frequency channels. If this entire radio beam were devoted to facsimile transmission, a message blank of 15 square inches could be transmitted by facsimile once every second or 60 per minute. However, with this radio beam a minimum of 480 narrow band teleprinter circuits has been set up, each with a capacity of one message per minute, which capacity could be doubled by the application of two-channel multiplex. Here again we have a message capacity for teleprinter operation eight to sixteen times greater than is possible by facsimile.

TV not economical now

At the present stage of the art, the application of television principles does not offer much opportunity for immediate economies. As a matter of fact, it would seem to be quite profligate of communication facilities in order to accomplish what is done better by other means. If and when technical developments make it possible to obtain wide band channels at a much lower cost than is now possible, the considerations just mentioned will become of less moment and we may then expect to see application of these principles for message use.

The fundamental principles of present day facsimile telegraphy and telephotograph transmission have been known for many years. Original manuscript was successfully reproduced at a distance by facsimile methods shortly after Morse invented his system of dot and dash telegraphy. From time to time over the years since, some success had been achieved with facsimile transmission, particularly of pictures, however, it was not until suitable vacuum tubes and the modern type photo-electric tube were available, that facsimile machines showing promise of practical commercial application were produced.

Western Union pioneered in this field and uses the name telefax to designate its facsimile equipment. While it has been very successful with the transmission of pictures over land lines and ocean cables its major effort has been directed towards developing apparatus for the transmission of record communications of the general public and press. Improvement of transmission and operating efficiency have been our aims in facsimile development work. Under these stimuli we have designed the most nearly automatic and easily operable facsimile apparatus in use today. No skill or experience is required in following the simple routines for operation of any telefax system. While in many applications separate units are used for transmission and reception, most Western Union machines furnished to customers are transceivers, i.e., they will either transmit or receive as required.

The simplicity of operation of telefax was made possible to a very large degree by the successful development of teledeltos paper. This paper, invented and perfected by our engineers, is an electro-sensitive paper, impervious to light and normal ranges of temperature and humidity. It can be printed upon, handled, sheeted, rolled, packed and stored in the same manner as ordinary stationery. Most important of all, however, is that recordings on this paper are produced in finished form without requiring developing or processing of any kind whatsoever. The recording is more permanent than ink. Recordings made on special types of teledeltos constitute masters from which many additional copies can be obtained by different processes.

Most of Western Union's facsimile equipment has been designed to operate over lines or other media, the transmission losses of which at voice frequency are very low. A scanning finess of 100 lines per inch and a drum speed of 180 R.P.M. is most commonly employed. This makes efficient use of the average line circuit and provides the fastest reproduction of copy eight inches wide, consistent with good quality. Machines which handle narrower copy operate at proportionately higher speeds with equivalent efficiency and quality of reproduction under the same transmission limitations. Telefax equipment at both terminals must be operated in synchronism. This condition is usually met by utilizing commercial power from the same alternating current, 60-cycle, 110 volt network.

Telefax described

It might be desirable to inform you briefly as to how the telefax operates. The telegram to be transmitted is wrapped around a cylinder. Light from a lamp is concentrated through a lens upon a small area of the telegram. Light reflected from a pin point sized portion of this illuminated area is permitted to pass to a photo-cell. The photo-cell causes a current of electricity to flow when it is exposed to the light, the amount of current being proportional to the amount of light falling on it. More light is reflected from the light areas of the telegram blank than from the dark sections formed by the words of the message. As the cylinder upon which the telegram is wrapped revolves, the light moves along the message until the entire telegram has been covered or "scanned" by this beam of light. The light reflected in scanning the message in fine parrallel lines, causes a rapidly varying current to flow from the photo-cell. This current is sent over the line to the distant receiver, in phase with and

(Continued on page 18)

Systematic Purchasing

By E. R. Verbeek

Here are some practical recommendations for the establishment of a centralized purchasing program. It takes much forethought and preparation, but pays off later on.

HOW can we systematize and control expenditures? It is very simple, and not too expensive. Centralize your purchasing. Analyse all your expenses other than those necessary for production. You will find that most of them fall into the following categories: stationery, forms, printing, mechanical equipment, furniture and fixtures, building maintenance, insurance, subscriptions, club and association memberships, contributions, telephones, fuel, electricity, transportation.

After your analysis of expenses, consider who is now handling and processing each separate purchased item. I venture to guess you will find these are thinly spread out —and not handled by one individual or in one place.

Next determine how much time is being spent in processing all these items. By time spent in processing, I mean interviewing salesmen, preparing purchase order, if any, investigating new office equipment, verifying validity of invoices, checking delivery of goods and a host of other details that accompany such tasks. Add up this time. If the time indicates that it is equivalent to the normal work week of one person, then allocate one person to the job. Reassign the duties of other personnel formerly participating in your purchasing program. If the time does not indicate full assignment for one person, readjust the work so that all purchasing procedures can be handled by one employee, plus other duties.

Personnel and Training

Who should do your purchasing? What type of employee should handle your buying? It is preferable that one who knows the operations, is personable and gets along well with people; one who can be relied upon and is willing to give of his or her own time for research, reading trade journals (and this includes advertisements) —be entrusted with this vital assignment.

Training in purchasing is vital to the success of your program. Willingness to learn and to make use of countless opportunities will enable one to become efficient in proper purchasing techniques. Numerous trade journals are available. The publication "Bank Purchasing Procedure," Publication #119, issued by the Bank Management Commission of the A.B.A. as well as several booklets published by the American Management Association and National Office Management Association are all valuable tools which should not be overlooked. Salesmen and representatives of substantial supply houses can also provide a wealth of information and be of great assistance to you. Visitations to other companies will also enhance your knowledge of purchasing. In purchasing, as in everything else, remember that the other fellow is as anxious to acquire knowledge of how you do things and where you buy, as you are.

A valuable tool to any purchasing agent, is a reference file. This file should contain catalogs from various supply houses, office machinery and furniture companies. Your file should be divided into two parts: 1. subject file — with individual folders for each type of item, containing pamphlets, quotes, etc., and 2. catalog file — divided according to vendors' names, showing source of supply and salesmen's names. These files should be reviewed periodically and obsolete reference data discarded.

Methods of Purchasing

Naturally purchasing in large quantities is always more desirable, because of the savings that can be made in quantity discounts. However, other factors of equal importance must also be given consideration. First, determine your annual requirements of all supplies, including forms, stationery, building maintenance supplies, etc. Next analyze the space available for storage of these supplies. If space is not available, it would be expensive to purchase on an annual basis and rent space in which to

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store your inventory. Usually, the supplier will hold your stock, but charge you a storage cost. This is not always desirable. Purchase of supplies on an annual basis must also be governed by the possibility of changes, either in forms, location of offices, mergers or other allied factors. Spoilage must also be given consideration as well as the delivery schedules and scarcity of materials. The average volume purchases, based on consumption, should be for a six-months' period.

When to buy is of great importance. To insure against abnormal expenditures, it is well to spread your purchasing requirements over a twelve-months' period.

Before placing any order with a supplier, analyse your needs. Fix in your own mind, just what you want. You are always placed at the mercy of the supplier if you ask him to provide all the necessary information, such as style of printing, grade of paper or size of form. The larger forms companies are equipped to render this service, of course, at no cost. However, the small printing jobber must account for all his time and that time spent on developing your ideas must be paid for — and you will pay it.

When you have determined the specifications and requirements, two courses are open for consideration: (a) if the quantity is sufficiently large, submit requests for quotations to three or more suppliers; (b) if the amount is small, use your own judgment and place the order with your local supplier. By furnishing them with exact specifications, you will insure yourself of receipt of comparable bids for larger amounts, as well as insurance that your requirements will be filled, according to your desires.

It is not recommended that bids be requested on orders, whose dollar value is less than $200. The writing of letters and time consumed in handling these bids, usually more than offsets any gain that could be made, price-wise, for small amounts. File your bids in your subject files, for future references, even though you do not place the order with the companies submitting the bids. You will usually find that comparison of prices will provide a good gauge for determining the price ratio of future orders, as well as delivery schedule.

Check all forms

When your order has been placed, request the submission of a proof. Proof-read all forms before printing. Remember, a misspelled or misplaced word on a form, note or agreement might mean a substantial loss. You may know the negotiable instruments act, but does your printer? Always check the goods upon delivery and before paying the invoice. Being human, your supplier can also make mistakes.

Source of supply is another important factor that cannot be overlooked. There are, in this country, numerous large companies, who specialize in every item you need. Their reputation, the quality of their merchandise, price (taking delivery costs into consideration), delivery and understanding of your problems must be weighed against the facilities offered by local suppliers. If you are interested enough in making inquiries for supplies which are of a substantial amount, you can rest assured that they will be interested enough in having their representative contact you personally. Such personal contacts will be of benefit to you, for in all likelihood they will have information which will prove of value to you, concerning some other phase of your business. Take advantage of offers to visit their plants. When you know how the product is made or prepared, it becomes much easier for you as a purchasing agent.

Establish Specifications

Most of us are guilty of ordering forms with no regard to their size or the grade of paper on which they are printed. If such items are not taken into consideration, a great variation may exist in prices, for one printer may submit bids on forms printed on paper with a large rag content, while another, in order to gain access to your trade, will submit bids based on the use of low grade sulphite paper. Before ordering forms, much groundwork must be laid, by the purchasing agent. All forms should be numbered, bearing a prefix denoting use — for example, a ledger card could be Form #B-1 — Bookkeeping Department, Form 1. It is recommended that a special Forms Committee be appointed. All new forms should be submitted to this committee for consideration.

The need for the form; what economies it will effect; what effect it will have on other departments; whether or not it replaces another form; whether it will eliminate any work and how much; what its cost will be, is it necessary? If all these factors have been considered, the layout of the form must be given consideration. If prepared by typewriter — adequate spacing, taking into consideration the type (pica, elite, etc); if manually prepared — whether or not it could be accomplished by machine — if not — proper spacing; sequence of information to be filled in; complexity of the form (can it readily be understood by both the customer and the clerk); size of the form — will it fit into standard envelopes, either blank or window; will it fit present filing equipment. Next, consideration should be given the type and grade of paper on which the form is to be printed. If the form is for purely internal use, a poor grade paper may be used, dependent on the retention period of the form. Some uses for sulphite paper are: deposit tickets, internal operating forms, debit and credit entries, and miscellaneous notices. Uses for rag content paper include: contracts, ledger sheets (if you do not film your old or filled up sheets), checks, letterheads, liability ledgers, stock certificates, mortgages, and all permanent record forms.

After the Forms Committee has analysed and approved

the form, the purchasing agent, of course, proceeds to place the order, according to the specifications which have been developed.

An item of extreme importance, that involves a substantial expense is the printing of forms of a purely internal nature. If these forms are not to be retained for periods exceeding ten years, they should be prepared on a mimeograph or ditto machine. Granted, they will not present as nice an appearance as printed forms, but they will certainly serve the same purpose. Why pay good money to a printer when a relatively cheap duplicating machine will accomplish the same purpose?

The laws of every state have determined certain statutes of limitations. In spite of this, many companies, acting in a conservative manner supplement these statutes of limitations by additional periods of time in which to retain their records. We have all been concerned, recently, with the duplication and preservation of current records in case of bombings. Filming of records has come more and more into prominence. Why not carry this program a little farther and transfer your old records to film? Cost is negligible, if you consider the valuable space now being occupied by your old records, as well as the files in which they are contained. Our bank, within the past three years, revised its retention schedule. As a result, 376 drawers containing filled and closed account ledger cards were transferred to film. The film containing these records, is stored in one filing cabinet, of three drawers, with space left for much more film. What did we do with the space? It was used for other valuable banking functions.

You may wonder where this fits into the picture of systematic purchase of supplies? The development of forms, their use, the type of paper—all have an important bearing on the end use of the form—and how long it will be retained.

Compare mechanical equipment

Before purchasing any equipment, visit other companies. You will see various types of equipment in operation and can judge, from their experience, the results of continued operation. Never decide on one make of equipment, without taking into consideration the merits of others. Price is not always the deciding factor.

Analyse the product. Determine what the machine will do. Find out what the experience of other users has been in the life of the machine. What depreciation can be taken annually, and what is the obsolescence rate? What economies can be effected and what savings of personnel, if any achieved? All these items should be given careful consideration, before a commitment is made.

Ask at least two competitive companies to install their machines for demonstration purposes. Permit your employees to work on them. Get their reaction. After all, they are the ones who will use the equipment, and they will gladly cooperate by pointing out the assets and disadvantages of the machines. Such opinions are valuable.

When you have determined which machine is the most desirable, taking all the aforementioned factors into consideration, place your order, stating specifically, all your requirements. Don't purchase a 10-bank adding machine if an 8-bank machine will serve the purpose. Don't buy a bookkeeping machine with analysis features, if your account analysis is manual—and if the transition will not save you money. What I am trying to say is that before you purchase any mechanical equipment, you must analyse the systems and procedures in the departments involved.

Typewriters are subject to much discussion. One make of typewriter may be ideal for strictly secretarial use. Another may be peculiarly adapted for use by employees who use the "hunt and poke" system—in locations where everyone in the department uses the machine, at one time or another.

The same policy as mentioned for office machinery should be followed in purchasing furniture and fixtures. Recently, the trend has been to gray and green colors, replacing the conventional walnut, oak and mahogany. Pastel shades of lighter color have a soothing effect on personnel. Give this some consideration. It may be hard to sell management on this, but the trend is towards lighter colors. Change is inevitable. Why not make it now?

Many companies do not give building maintenance supplies much consideration. To them, it merely means, a couple of brooms, mops, buckets and sundry cleaning compounds. In every area of this country, there exists janitor supply houses, who can supply you with all the necessities and give you an attractive trade quantity discount. Analyse your needs, standardize your items and group your purchases. It pays!

Subscriptions, Dues, Transportation

Many feel that the handling of subscriptions, dues and club memberships do not fall within the realm of the purchasing agent. However, when we analyse it, I feel you will agree that, after all, when we subscribe to a magazine we are purchasing something. The same thing holds for memberships, transportation and donations. The amount of money involved in such transactions, can be sizable.

I do not advocate that the purchasing agent should have jurisdiction over how much should be given a charitable organization, or who should be a member of a country club. With centralized control over the records, the amount of money expended, management will be in a better position to determine future policies than by not having such records. As invoices are received for renewal of membership dues, subscriptions and donations, the purchasing agent merely forwards them to the management personnel responsible for review and approval. Again, we

are merely centralizing a function of ordering and expending funds.

Need for purchase order

Every purchase, no matter what the commitment may be, should be covered with a purchase order. This need not be an imposing or technical form. It should contain, however, the name and address of the company, purchase order number and signature. Terms, conditions of sale, specifications, delivery instructions, all can be typed in the order.

Now, how many copies should be made? Frankly, I am averse to the creation of multi-copied forms, if such forms are not developed for the purpose of achieving operating economies. By that I mean, where forms are created as a convenience for certain departments or personnel, with no regard to the effect on other departments or operations and where no real savings can be effected. For example, a form can be devised, with copies to be filed both numerically and alphabetically. No thought is given to how much time is saved by providing these additional file copies—and the amount of money saved, versus the cost for additional filing equipment and value of space involved—which will be an important factor, after a period of time. Remember this one important item: don't create extra copies unless absolutely necessary.

(Continued on page 18)

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VOL. 1—No. 1 March, 1950

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VOL. 1—No. 2 June, 1950

An "Old Shoe" Concept of Systems—*A. L. Mettler*
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Methods Office: Scope, Presentations—*W. K. Minor, J. M. Kennedy*
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VOL. 1—No. 3 September, 1950

Can Auditing and Systems Be Combined?—*E. M. Herstein*
A Nod from Top Management—*G. L. McKenna*
Cutting $500,000 in Half (Part One)—*Gibbs Myers*
A Trilogy on Accounts Receivable—*J. C. Peters, G. E. Schmidt, W. Leslie*
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VOL. 1—No. 4 January, 1951

Close-Ups and Long Shots—*O. V. Melton*
Tapping the Reservoir of Employees' Experience—*Donald Titus*
Gaining Acceptance of New Ideas—*J. B. Joynt*
Co-Ordination of Payroll Systems with Management Planning—*W. F. Luke*
Something to Look At—*A. Hall*
Establishing Procedure Control Via Manuels—*R. M. Harmon*
Development of Competent Systems Personnel—*R. F. Neuschel*
Relationship of Forms Control to Systems Control—*F. M. Knox*
Simplifying The Clerical Operation—*C. J. Berg*
Organization and Personnel Studies Point the Way—*W. A. Gill*

VOL. 2—No. 1 March, 1951

Securing Continuous Management Support—*D. Y. Cole*
The Systems and Procedures Function—W. C. *Marks*
Some Standards in the Office—*L. B. Helms, Jr.*
That Methods Man—*J. G. Hendrick*
Charting Techniques—*J. F. Foley*
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Accounts Payable Systems—*B. H. Semler*
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VOL. 2—No. 2 June, 1951

Influence of Systems and Procedures on Operations—*S. B. Ritchie*
The Vanishing Office—*J. W. Haslett*
How One Company Speeds Investment Advices—*L. G. Getschel*
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VOL. 2—No. 3 January, 1952

What Price Business Electronics—*J. S. Coleman*
Cutting $500,000 in Half (Part Two)—*Gibbs Myers*
Statistical Charting—Tool of Management—*W. A. Miller*
Costs in Microfilming Records—*C. E. Noll*
Supervisors as Management Analysts—*J. R. Sterling*
The Human Factor in Systems Work—*V. H. Roman*
The Systems Man in National Defense—*J. V. Lester*

VOL. 2—No. 4 March, 1952

Centralization vs. Decentralization—*J. R. Hallock*
Inventory-taking-a Symposium—*W. H. Barinoff, O. W. Watters, H. F. Campbell, H. B. Mills*
New Horizons with Telegraph Transmission Techniques (Part One)—*G. A. Trapp*
What Small Business Should Do About Manuals and Methods—*L. J. Kroeger*

Office Systems Courses in the College Curriculum

A university professor's survey and recommendations

By Samuel J. Wanous

ELEVEN years ago, when I first came to UCLA to organize and install an office management program there were not more than half a dozen schools in the entire country offering courses in office management. Out here on the West Coast none of the universities and colleges was teaching even one course in office management as part of their management training programs. Ours was the first school to set up a series of related courses leading to an office management major. In the years that have intervened almost every school on the Coast, and many others around the country have developed courses in office management. Many have developed those courses around an office management major, following UCLA's lead.

Our office management program tries to do three jobs. First, it attempts to acquaint the students with the wealth of information that has been developed through research, discussion, and study on such topics as office layout, lighting, noise control, flow of work, standards, work simplification, selection and training of personnel, and selection and use of office equipment. A few hours are spent going over the material that is available on the development and installation of office systems.

Second, we try to get the students to use the so-called "scientific approach" in handling a variety of office problems. We are and for a long time have been collecting actual management problems from the men who direct the work of local offices. These problems are dressed up and given to the students to solve. The hope of the program is that the students will learn to state a problem exactly and carefully, that they will analyze it into the various parts, that they will collect pertinent facts necessary to solve the problem in question, and that they will interpret those facts correctly before drawing any conclusions. Here at UCLA, all of the courses in the office management series try to develop at least some proficiency in using the scientific method in handling office problems. In addition, we have a graduate course entitled "Case Studies in Office Management" in which the entire time is spent developing the scientific approach in office management. Some of the problems quite naturally either touch upon or are directly concerned with office systems and procedures.

For the third job our program tries to develop specialists in certain office management areas. One of the areas on which we have had our eyes for some time is the area inhabited by office systems experts. We realize that a good deal of general as well as specialized training is needed by the men and women who work in this field; and we believe, further, that this training can and should be given by the University. At the present time we have a systems and procedures course approved for the downtown school which can be given any time we have a demand for it. As yet, we have not organized a comparable course for regular university students.

So much for our program at UCLA. Now let us take a look at systems programs in other universities. An examination of catalogues of schools of business shows that instruction in office systems and procedures is handled in four different ways. It is handled, in the first place, in courses in office management. Three or four meetings are devoted to a survey and study of office systems. It is not the purpose of this training to turn out specialists in office systems and procedures. Rather, this material is included in an office management course for the purpose of acquainting the students interested in the total office management problem with some of the techniques used in developing office systems.

In the second place, training in office systems is handled in a course in accounting systems. A school offering such a course is Ohio State University. We, at UCLA, give such a course through our Extension Division. In this course, office systems and procedures are studied in an effort to determine in what ways they contribute to the development of better accounting records. The emphasis is on record keeping and record using.

A third type of course in which instruction in office systems is given is one usually entitled "Industrial Procurement, Planning, and Control." In this course office systems are studied in relation to their contribution to

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manufacturing processes—to the movement of materials and to the use of labor in the conversion of those materials. The Wharten School of Finance and Commerce, for example, handles its instruction in office systems and procedures in this way.

A final way in which training is given in office systems is in courses specifically designated "Office Systems and Procedures." Examples of schools offering courses of this type are New York, Cincinnati and Boston Universities. UCLA offers a similar course through its Extension Division. Here a broad approach is made to the problem. Office procedures are studied, principles of motion and time study are applied to those procedures, and contributions both to the records of the enterprise and to production efficiency are evaluated.

Collegiate training in office systems and procedures is in its infancy. Very few schools offer training in the area beyond that which may be included in a general course in office management. It is difficult to draw conclusions from the few courses in office systems that are now being given. Men and women engaged in systems and procedures work are of course interested in having universities recognize the work that they are doing. Such recognition will improve their work and will raise their professional status. You who are interested in this field may want to know how you can get this kind of recognition. Let me give you three suggestions.

I would ask you, in the first place, to reduce your own techniques and procedures to principles that can be studied, analyzed, mulled over, and applied to a variety of systems problems. No collegiate training program is interested in unrelated details. It is interested, however, in principles and in a study of the application of those principles to problems. I would ask you, in the second place, to standardize your terminology. There have been times when I have listened to systems and procedures men discuss their work in words I could not understand. Yours is a specialized area. You are developing a language that applies to that area. I ask you to define your terms so that they may be used correctly in management literature. In the third place, I ask you to describe your problems, your findings, and your evaluations in the literature of your field. Without these published materials, collegiate programs can not function properly. One of the first things we do when exploring a new area for possible inclusion in our training program is to determine what published articles are available for the use of our students.

The number of universities offering courses in office systems is small indeed and their experience in doing so is of short duration. But the programs developed so far do indicate an interest in the field and do recognize the importance of the work that systems men do. In ten years we hope to report that every large university in the country is offering courses in office systems and procedures. • • •

Systems

By John G. Cadby

THROUGHOUT the utilities industry, as well as other industries, there has in recent years been a growing interest in methods and procedures work. While the importance of industrial engineering in the factory has been recognized for many years as an important factor in reducing costs, the corresponding importance of methods and procedures work in the office has not been widely recognized until very recently. A methods and procedures staff was started in the customers' accounting division of the Wisconsin Electric Power Company, in 1925. Few, if any, other utility companies had methods and procedures staffs at that time. The benefits it derived from the methods and procedures staff in the customers' accounting division was sufficient proof that a similar organization should be established in other divisions of the accounting department.

It is only in the past few years that a large number of companies in all fields of endeavor have become sufficiently interested in this subject to establish formalized methods and procedures units. The fact that this interest is becoming widespread is shown by the numerous papers, articles, and books on cost control and work simplification which have appeared since the close of World War II.

A survey was recently made to determine how many utility companies have formalized their methods and procedures work, how the methods and procedures unit is organized, under whose jurisdiction the unit operates, and the scope of its activities and its freedom of action. A questionnaire was sent to 81 electric and gas utility companies. Fifty-three companies replied to the questionnaire.

Of the 53 companies replying, twenty-four have established full time methods units. Several of these companies indicated that their departments were established recently and that they have plans for expansion. Two additional companies indicated that they expect to form full time methods units in the near future.

Nine companies reported that the methods unit operates on a company-wide basis, thereby effecting improvements throughout the company wherever paper work is

Work in the Utilities Field

A survey of utilities companies indicated that less than half employed a methods staff on a full time basis. But interest is growing rapidly.

involved. The methods and procedures unit performs work primarily on accounting systems twelve companies. Two companies reported that their methods and procedures units now perform work primarily on accounting systems, but that they are being reorganized to operate on a company-wide basis.

Approximately 35 per cent of the companies replying do not have a formalized methods and procedures program staffed by full time personnel. However, most of them indicated that some methods and procedures work is carried on in some manner or other—either by supervisors performing this work as a part of their regular duties or by special committees which have been formed to perform or direct certain phases of methods and procedures work.

The growth of the trend toward formalized methods and procedures work throughout the utility industry is clearly demonstrated by such comments as, "Our methods department is in the process of organization. Nine positions have been authorized for this activity." "The formulation of such a program was only begun July 1, 1951. It is still in the early development stages." "An independently functioning methods group is being developed but is still in the training period." "Plans are under consideration for increasing the personnel and broadening the scope of activities."

Regardless of the progress being made there are still many concerns that do not recognize the full value and the potentialities of office methods work. They do not realize the innumerable worth-while economies which can be brought about through effective research conducted by competent methods specialists. One company wrote this comment on their questionnaire: "Being a small company, we do not have the need for any separate methods people in our accounting department, as is required by a large company." Actually, the formalizing of methods and procedures work is not something that is applicable only to large companies. It is applicable to every company. The techniques may vary in different sized companies, but the principles remain the same.

Another obvious factor brought out by the replies is that there is no standard relationship between the number of full time methods employes and the total number of employes in the company. Rather it appears that the number of employes in the methods unit is determined by the scope of activity and the extent of the operations of the methods unit more than by the numerical size of the companies employes.

The methods unit, whether consisting of one individual or a group, should serve in a staff capacity in all of its functions. Members of the unit cannot do creative thinking if they are constantly "bogged down" with operating routines or the details of line responsibilities. Experience has shown that when the improvement of methods and procedures is left to operating supervisors and employes as a sort of side line, it is handled in a rather haphazard manner. This is primarily so because operating people are mainly concerned with getting the work out on schedule. We do not leave the solving of legal problems to people without technical training—we assign them to lawyers. We do not leave the solving of engineering problems to those without professional engineering training—we assign them to trained engineers. We believe that it is equally important to assign the solving of methods and procedures problems to trained experts in this field.

Companies which do not have a formalized methods and procedures unit should give serious consideration to establishing one. Furthermore, companies having formalized methods and procedures units only in isolated departments or segments of the company should consider performing this work on a company-wide basis in order to gain greater efficiency and economy. It is believed that this approach offers the best possible program for reducing the costs of office operations and for improving the quality of the work performed. • • •

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Telegraph Techniques

(*Continued from page 10*)

operating at the same speed as the transmitter and similar to it, except that the photo-cell scanning feature is replaced by a needle-like stylus. Pulses sent out by the photo-cell are laid down on the teledeltos receiving blank by the stylus in the same order in which they are picked up by the photo-cell from the original message, producing a facsimile of it.

The most recent product of Western Union's facsimile research and development is the high speed telefax, which meets the need for a system to handle a heavy volume of communications in a minimum of time.

The drum speed of 1,800 R.P.M. is ten times the standard speed for other Western Union facsimile systems. All functions have been streamlined to fully realize the potentialities of the higher speed. With scanning at the rate of approximately 127 square inches per minute, newsprint can be transmitted and recorded at a rate of 3000 words per minute. The two-way message capacity of the system may exceed 500 per hour. The actual loads handled are of course determined by lengths of messages and load factor or fall of traffic.

Two complete transmitters are alternately loaded thus making possible to maintain a substantially continuous flow of traffic. The transmitter will handle copy material on paper of various dimensions up to 8½ inches by 14⅝ inches, which it scans at 120 lines per inch to secure high definition.

Until now, our facsimile program has been confined to the establishment of facsimile equipment in customer's offices for the origination and termination of messages, supplanting manual means of handling such traffic. Several thousands of such installations have been made in various cities in the country and with the knowledge that has been gained in these operations, coupled with the market research activities that we have pursued, I venture the prediction that it will not be long before such equipment will be available on a lease basis and that many, many uses will be found for it.

The Systems Side

(*Continued from page 6*)

tion, criss-crossing, backtracking, and red tape. A man cannot correct a weakness if he doesn't know it exists. He cannot streamline a flow in an office if he doesn't realize the flow *is* backtracking. Without eternal systems vigilance office work tends to revert to a mass of red tape. People do things without questioning *why* they do them.

We can only high-light the systems work potential here. We could examine the field of work measurement and work simplification, the setting of standards in the office, and the planning of office production (just as we plan production in the shop). All these improvements are gradually being put into effect in various organizations due to the work of the systems department. Systems results have again and again had a profound effect on the profit gain of companies.

Your systems man should certainly be able to do a good job of forms design. A poorly designed form used by many workers can double and triple the time required to do the work. (And most amateurs do design poor forms.) On the other hand, once a form is well-designed, its usefulness can go on for almost a generation with only minor revisions, and during this period the form will always be producing the savings that were realized from the original study.

Dividends from systems work are very real and are being secured every day by management that have the foresight and the understanding to encourage a sound, hard-hitting systems program.

Systematic Purchasing

(*Continued from page 14*)

What use is made of the copies? The duplicate should be used by your purchasing agent to check against delivery, upon receipt of goods; to verify the invoice for terms and conditions; to serve as a filed reference for future orders as well as historical record of relationship with the supplier. The triplicate copy can be used by either the auditor or the general ledger or both, as a further check, upon receipt of the invoice from the purchasing agent, for payment. This copy can also be used for cost analysis purposes.

Invoices should be paid by a source other than the one creating the obligation. I am suggesting that your general ledger or audit department should prepare the checks in payment of bills. It is preferable that this be done by the general ledger, inasmuuch as the true function of the auditor is to check, not create entries.

As I stated before, the invoice should be checked and verified by the purchasing agent. It should be his responsibility to determine whether or not all conditions have been met and that the goods received are in accord with the purchase order. The invoice should also show the purchase order number, as a means of identification for the general ledger. Discounts should be checked and figured by the purchasing agent. The invoice should then be forwarded to general ledger, for payment.

All the recommendations and suggestions I have made, I assure you, are not theoretical, but practical. They have been tried and proved to be of real value. To set up a centralized purchasing program requires much initial forethought and work. No doubt, to many, it may seem not worth the effort. I assure you, however, that, after the initial work has been done, you will find the maintenance of such a program to be simple and worthwhile. In time, it can only pay you real dividends.

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